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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,777	08/07/2003	Akiyoshi Mikami	50024-015	1705

7590 11/23/2005  
McDERMOTT, WILL & EMERY  
600 13th Street, N.W.  
Washington, DC 20005-3096

EXAMINER
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THOMPSON, CAMIE S

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/635,777

**Applicant(s)**

MIKAMI, AKIYOSHI

**Examiner**

Camie S. Thompson

**Art Unit**

1774

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on Amendment filed September 8, 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 and 11-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9, 13 and 14 is/are allowed.
- 6) ☒ Claim(s) 1-6, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 2 and 3 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>7/19/05</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Applicant's amendment and accompanying remarks filed September 8, 2005 have been acknowledged.
2. Examiner acknowledges amended claims 1, 7, 11 and 13.
3. Examiner acknowledges cancelled claim 10.
4. The objection to the Information Disclosure Statement is withdrawn due to applicant's submission of the non-patent literature.
5. The rejection of claims 1-6 and 8-9 under 35 U.S.C. 102(b) as being anticipated by Okajima et al., U.S. Patent Number 5,700,591 is withdrawn due to applicant's amended claim 1.

#### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 4-6 and 11-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yano et al., U.S. Patent Number 6,699,596.

Yano discloses an El device comprising a phosphor thin film wherein the phosphor thin film comprises a barium magnesium thioaluminate as per instant claims 5 and 6 (see column 3, lines 1-16). Additionally, the Yano reference discloses that the light emitting device comprising a first insulating layer (underlayer) and a light-emitting layer (phosphor layer) (see column 6, lines 33-41). Column 7, lines 22-52 of the reference discloses that the insulating layer is 50 to 1000 nm

Art Unit: 1774

thick and can comprises silicon nitride, silicon oxynitride, zirconia, lead titanate or barium titanate (semiconductor material) as per instant claims 1 and 4-6. Column 4, lines 58-64 of the reference discloses that the light emitting layer is preferably about 100 to 2000 nm thick. The reference also discloses that the phosphor has a luminescent center that can be europium (see column 3, lines 1-24).

8. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art does not provide for the recited inorganic electroluminescent device, further including the first compound semiconductor and the second compound semiconductor having a rock salt structure and an orientation in a  $\langle 100 \rangle$  direction.

9. Claims 7-9 and 13-14 are allowed. The prior art does not provide for an inorganic electroluminescent device comprising in the following order:  
an underlayer formed of a first compound semiconductor of Group Iia-Vib; and a light emitting layer formed of a second compound semiconductor of Group Iia-Vib, said first compound semiconductor and said second compound semiconductor having the same crystalline structure, wherein said second compound semiconductor contains  $\text{Mg}_{1-x}\text{Ca}_x\text{S}$ , and the Ca composition ratio  $x$  is  $0.1 \leq x \leq 0.15$ .

10. Additionally, the prior art does not provide for an inorganic electroluminescent device comprising in the following order:  
an underlayer formed of a first compound semiconductor of Group Iia-Vib; and a light emitting layer formed of a second compound semiconductor of Group Iia-Vib, said first compound semiconductor and said second compound semiconductor having the same crystalline structure,

Art Unit: 1774


wherein said second compound semiconductor contains  $Mg_{1-x}Ca_xS$ , and Eu is doped into  $Mg_{1-x}Ca_xS$  as a substance acting as a luminescent center, and the composition ratio of Eu to Mg is not larger than 0.1.

***Response to Arguments***

11. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Camie S. Thompson whose telephone number is (571) 272-1530. The examiner can normally be reached on Monday through Friday from 7:30 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena L Dye, can be reached at (571) 272-3186. The fax phone number for the Group is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
RENA DYE  
SUPERVISORY PATENT EXAMINER  
A.U. 1774 "11/16/05"